

REMARKS

Claims 1-81 were examined. Claims 1-10, 18-19, 21, 23, 34, 36-37, 39-46, 64-72, and 78-81 are rejected. Dependent claims 11-17, 20, 22, 24-33, 35, 38, 47-63, and 73-77 were objected to as allowable if written in independent form.

Applicants amend claims 11, 12, 14, 18, 32, 35, and 72-76, and submit that no new matter is added herein. For example, amendments to claims 11, 12, 14, 18, 32, 35, and 72-75 are to remove intervening claim limitations to create dependent claims based on allowable subject matter indicated in Section 7 of the current office action. Amendment to claim 76 is to correct an antecedent basis problem.

Applicants respectfully request reconsideration of claims 1-81 in view of at least the following remarks.

I. Claims Rejected Under 35 U.S.C. § 103

Claims 1-10, 18, 19, 21, 23, 34, 36-37, 39-46, 64, 70-72, and 78-81 are rejected under 35 U.S.C. § 103(a) as being anticipated by U.S. Patent No. 6,353,654 to Granfors et al. (Granfors) in view of U.S. Patent No. 6,996,288 to Sun (Sun). To render a claim obvious, all limitations of that claim be taught or suggested by all informed properly combined reference.

Regarding claims 1-10, 18-19, 21, and 23, Applicants respectfully disagree with the rejection above and submit that independent claim 1 is patentable over the cited reference for at least the reason that the references do not teach or suggest estimating an excess signal based on a non-linear decay response model of a measured signal of an imager frame and compensating for the excess signal, as required by claim 1.

Granfors discloses compensating for a retained image using quantity of "q + 2" frames between the end of a first exposure and the beginning of a second exposure to predict response "d" of the imager using a least squares method to

model the response with a "vector" (e.g., see equation 5 of Granfors and column 7, lines 48-54) to provide a linear combination of predicted outputs to model each pixel as a linear, time-invariant system whose response " $H(z)$ " is unknown (see Granfors col. 6, lines 45-50; col. 7, lines 5-20, 32-63). Specifically, Granfors uses the vector model to obtain a first predicted output of the system, and a second predicted output can be predicted using the first predicted output as the last input value for the linear vector model, or by a linear combination of the first predicted output and the last input value used (see Granfors, col. 7, lines 48 through col. 8, line 3). Thus, Granfors discloses a linear modeling of the pixels and predicting the output based on that linear combination (see paragraph 7, lines 60 through col. 8, line 6). Consequently, the Patent Office has not identified and Applicants are unable to identify any teaching in Granfors that provides for estimating an excess signal based on a non-linear decay response model of a measured signal or compensating for the excess signal, as required by claim 1.

Sun teaches using a non-linear model of raw pixel gray levels of an input signal of an image to calculate image intensities that are linear with the input signal because if the image intensity is not linear to the input signal, the calculated shading area will not be accurate (see col. 2, lines 12-27). Sun teaches using the non-linear model of gray levels of an image so that a linear model can be used calculate the shading area of an image (see col. 1 line 46 through col. 2, line 12). The shading area is calculated for a single field of view or image (see col. 6, lines 13-24). However, the models of Sun do not consider or compensate for changes over time (e.g., see equation 1 of Sun, col. 1 line 65 - col. 2 line 10 which only considers pixels of a single frame and col. 3, lines 8-10) are not analogous with the decay over time response model. Hence, the Patent Office has not identified Applicants are unable to find any teaching in Sun that provides for estimating an excess signal based on a non-linear decay response model of a measured signal of an imager frame and compensating for the excess signal, as required by claim 1. Hence for at least the reason that neither Granfors,

Sun, nor the combination teaches are suggested the above noted limitation of claim 1, Applicants respectfully request that Patent Office withdraw the rejection above.

In addition, Applicants assert that the combination of Sun with Granfors is improper. First, a practitioner would not look for Sun for assisting Granfors for the reason that they are not analogous art. Specifically Sun addresses shading error intensity variations across an image resulting from inhomogeneity in the photoelectric sensors, illumination, optics, and electronics of sensors (see col. 1, lines 20-31). Specifically, Sun teaches correcting for a single image and then using the correction coefficients for that image for every subsequent image (see col. 1, line 65 through col. 2, line 10; col. 3, lines 8-10). Thus, the intra-frame models and corrections of Sun which do not consider or compensate for changes over time (e.g., see equation 1 of Sun, col. 1 line 65 - col. 2 line 10 which only considers pixels of a single frame and col. 3, lines 8-10) are not analogous with the decay over time response model for radiographic or fluoroscopic image, such as those of Granfors. Consequently, a practitioner would not be motivated to look at the intra-frame correction models of Sun to model the decay response over time of Granfors. Hence for a least this additional reason that the accommodation is improper, Applicants respectfully request the Patent Office withdraw the rejection above of claim 1.

Finally, the combined teaching of Granfors and Sun cited that by the Patent Office are not enabled. As noted above the non-linear model of Sun is used to model raw pixel gray levels across pixels of a single frame, while Granfors requires a decay response model to predict decay of charge levels in an imager over time. Thus, while the terms "non-linear model" do appear in Sun it is Applicant's position that the model of Sun for translating non-linear gray levels of pixels of an input signal in the graphics context of Sun would not be applicable or enabled to model a decay response over time as required by

Granfors. Hence, for at least this additional reason Applicants respectfully request the Patent Office withdraw the rejection of allowable claim 1.

Any dependent claims not mentioned above are submitted as not being anticipated or obvious, for at least the same reasons given above in support their base claims.

Regarding claims 34, 36, 37, and 39, Applicants assert that as claims 34, 36, 37, and 39 depend from allowable base claim 1, those claims are allowable over the cited references for at least the reasons stated above for claim 1. Hence, Applicants respectfully request the Patent Office withdraw the rejection above for claims 34, 36, 37, and 39.

Regarding claims 40-46 and 65-69, Applicants asserts that these claims being dependent upon allowable base claims 1 and 64 (arguments for 64 are supplied below) are allowable over the cited references for at least the reasons described herein in support of their base claims. Hence, for at least those reasons Applicants respectfully request the Patent Office withdraw the rejection of claims 40-46 and 65-69.

Regarding claims 64, 70-72, 78-79, and 80-81, Applicants respectfully disagree with the rejection above and submit that independent claims 64 and 80 are patentable over the cited references for at least the reason that cited references do not teach or suggest compensating an excess signal based on a non-linear decay response model and a frame rate, as required by claims 64 and 80. Arguments analogous to the ones above for claim 1 apply here as well. Hence, for at least the reasons noted above for claim 1, Applicants respectfully request the Patent Office withdraw the rejection of claims 64 and 80.

Second, Applicants respectfully disagree with the rejection above and submit that independent claims 64 and 80 are patentable over the cited references for at least the reason that cited references do not teach or suggest compensating

an excess signal based on a frame rate, as required by claims 64 and 80. As noted above for claim 1, Granfors discloses using a quantity of $q + 2$ frames of its γ frames without radiation between the end of the first exposure and the beginning of a subsequent exposure (see col. 7, lines 35 through col. 8, line 6). Specifically, Granfors uses a least squares method analysis of pixel values at sequential sampling intervals of a finite data sequence of interim period 94 (see col. 6, lines 25-56; col. 7, lines 33-36) to linearly model a vector to predict outputs of $q + 1$ of the $q + 2$ frames, and provides a linear combination of predicted outputs (see col. 7).

Consequently, the Patent Office has not identified and Applicants are unable to find any disclosure in Granfors that accounts for compensating for an excess signal based on a non-linear decay response model and a frame rate. Specifically, the Patent Office has not identified and Applicants are unable to find any indication that the rate of frames is considered in Granfors as a factor in modeling or predicting output.

Similarly, Sun teaches intra-frame models without considering or compensating for changes over time. However Sun does not teach or suggest compensating for an excess signal based on a frame rate.

Hence for at least the reason that neither Granfors, Sun, nor the combination teaches are suggested the above noted limitation of claims 64 and 80, Applicants respectfully request that Patent Office withdraw the rejection above.

Any dependent claims not mentioned above are submitted as not being anticipated or obvious, for the same reasons given above in support of their base claims.

II. Allowable Subject Matter

Although Applicants argue the claims above, Applicants note with appreciation the Patent Office's indication that claims 11-17, 20, 22, 24-33, 35, 38, 47-63, and 73-77 are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all the limitations of base claim and any intervening claims. Applicants have amended various claims to remove intervening claim limitations to create dependent claims based on allowable subject matter indicated in Section 7 of the current office action. Applicant submits that although the intervening claims are now removed from the claimed subject matter, these claims remain allowable both for the reasons discussed above in relation to the independent base claims as well as for the reasons set forth in Section 7 of the current office action.

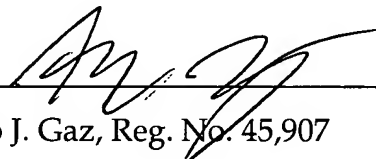
CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance, and such action is earnestly solicited at the earliest possible date.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17. If a telephone interview would expedite the prosecution of this Application, the Examiner is invited to contact the undersigned at (310) 207-3800.

Respectfully submitted,
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Date: August 22, 2006


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I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

 8/22/06
Amber D. Saunders Date